

Publication 4: Japanese Patent Laid-Open Publication No. Hei 11-275032  
(Application Date: March 23, 1998; Laid-Open Date: October 8, 1999)  
"Method and System for Investigating Listening State of Car Radio  
Receiver and Apparatus for Measuring Car Radio Receiver Listening  
State"

[Abstract]

[Object]

To provide a car radio receiver listening state investigation system by which a listening state of a car radio receiver can be accurately investigated.

[Achieving Means]

Each vehicle 1 records, over a fixed duration starting at every predetermined measurement start time that unfailingly occurs every certain period such as one minute, measurement data including a characteristics quantity and measurement period of an audio signal reproduced by a car radio receiver, and collectively transmits the recorded data to an investigation center 4 at a later point of time. A broadcast receiving facility 3 generates, over a fixed duration starting at every predetermined measurement start time which is the same as that of each vehicle, master data for each station, including a characteristics quantity and measurement period of an audio signal reproduced by a tuner 32 for receiving broadcast of a candidate radio station, and transmits the master data to the investigation center 4. The investigation center 4 stores the master data in a station-based master DB 43. The characteristics quantity for each measurement period in the measured data transmitted from each vehicle 1 is compared with the characteristics quantity in the master data of each station for the same measurement period, so as to determine the listened station of each vehicle 1 in each measurement period. The clocks for each vehicle 1 and the broadcast receiving facility 3 are in synchronism with a reference time of a GPS satellite.

[Claim 1]

A car radio receiver listening state investigation method for investigating a listening state of a car radio receiver mounted on a vehicle, wherein:

for each of a plurality of vehicles which are targets of the investigation, during when power of a car radio receiver remains in an ON state, at every occurrence of a predetermined measurement start time, a measurement data including a characteristics

quantity of an audio signal reproduced by the car radio receiver over a fixed duration starting from that time and data identifying the current measurement period is created and recorded, and a series of the recorded measurement data are collectively transmitted to a fixed facility side; and

at the fixed facility side, at every occurrence of said predetermined measurement start time, over said fixed duration starting from that time, master data for each station including a characteristics quantity of an audio signal reproduced by a receiving tuner for each radio station and data identifying the current measurement period are created, and the characteristics quantity for each measurement period in the measured data transmitted from each vehicle is compared with the characteristics quantity in the created master data of each station for the same measurement period, thereby determining a listened station of each vehicle in each measurement period.

[0069]

A characteristics quantity of a frame section is obtained for the respective one-hundred frames. The vector of the characteristics quantities for the one-hundred frames is defined as block data  $CB(i)$  in the following formula (4), and used as the characteristics quantity related to the audio signal which is currently measured.